Management Response to the Tsunami, Surin Marine National Park, Thailand

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ABSTRACT

Surin Marine National Park lies northwest of Phuket. Before the 26 December 2004 tsunami, its reputation as the best shallow-water reef in Thailand attracted more than 30000 visitors per year to the 8km^2 of fringing reef. Visitor management included fees, permits, specific activities management, a zoning plan and an information centre. Zoning plan exclusion areas included the area of highest biodiversity and a coral bleached area (for natural recovery). While management faced many long-term challenges, it was generally appropriate for the visitation level and threats to the reef system.
The tsunami demolished all park infrastructure and effectively destroyed the capacity to manage. Major tourist operators were reduced, currently, from four to two, although dive-boats were largely unaffected. The biodiverse exclusion area and the area most used for snorkelling (near the park headquarters) were destroyed. While tourist arrivals were decimated, rapid recovery is expected with associated demand to access unaffected sites. The problem for management is to re-establish an effective presence and define a regime that is supportive of tourism-recovery, but meets long-term conservation objectives. This paper documents pre and post tsunami reef condition, visitor and operator expectations of management and possible approaches to short and long term management.

KEYWORDS: Surin Marine National Park; Tourism; Coral reef; Tsunami, Management options

INTRODUCTION

The tsunami of 26 January 2004 that hit the northern Indian Ocean rim had devastating effects on coastal communities. Also affected were the reefs, which in many cases were the focus of marine parks and tourist activity of regional economic importance and national tourism image. The level of reef impact was variable. Zeng *et al.* (2005) highlight that while individual tourist operators can be affected by short-term catastrophic events to the point of business failure, tourism is highly resilient, returning to pre event status as soon as infrastructure is in place. In contrast, reef ecosystems are slow to recover. These, with the variability in reef areas affected and the demands of a re-establishing tourist industry, have the potential to place considerable stress on marine park management.

The reefs of Surin Marine National Park were one of the two locations in Thailand most affected by the 2004 tsunami. With 7 years of pre-tsunami monitoring data on reef condition and before and after surveys of tourists and other stakeholders, this paper reports the general impacts of the tsunami on reef condition and, in the context of stakeholder expectations and perspectives, provides insight to the implications for marine park management that a sporadic catastrophe can have.

BACKGROUND AND PRE-TSUNAMI SITUATION

Surin has an area of 135 square kilometres. Marine component covered 76 percent and the balance (33 square kilometres) is terrestrial. The park consists of five granitic islands, surrounded by fringing reef, and two exposed pinnacles.

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Many researches identified Surin as the most diverse reef system in Thailand (Saisaeng, 2002; Sittithaweepat, 2001; Thamrongnawasawat *et al.*, 1995; Worachananant, 2000). Before the 26 December 2004 tsunami, Torinla Island, the area with best reef conditions, had more than 90 percent living coral coverage.

THREATS AND THE APPROACH TO VISITOR MANAGEMENT

Notwithstanding the destructive effects of the 2004 tsunami, there are few natural threats to the reefs of Surin. The park is remote from the mainland and all the islands are covered with healthy forest, so sedimentation and pollution are not major issues. Most researchers suggest that the major threat is from human related activities (Sittithaweepat, 2001; Thamrongnawasawat *et al.*, 1995; Worachananant, 2000).

Tourism management

Tourism management is based on a visitor register charge, boat permits, specific activities management, a short-term zoning plan, compulsory buoy mooring use and information dissemination from the island's interpretive centre. Before the tsunami, visitor numbers to the park were increasing. In the first four months of the 2003-2004 season, visitor numbers reached 30,000. Piewsawat (2002) found that 96% of visitors expressed a desire to snorkel, and 98% actually did. Our most recent survey found a much lower expectation of snorkelling (36%) but an equally high participation rate (91%). This suggests a shift in the market from visitors specifically seeking a sub-surface experience towards visitors simply seeking a marine/island/reef experience, but who participate in snorkelling if it is available. With this increasing number of tourists and the relatively small area for diving, it is difficult to balance demand and the minimisation of direct attrition of marine resources without effective visitor management.

On park surveys in April and May and December 2004, revealed that fewer than half of the visitors had a clear idea of management being applied, especially the zoning scheme (fewer than 40%). This lack of understanding is a threat to the coral reef, because most (94%) of those who were unaware of the zoning scheme participated in coral damage risk activities – snorkelling and SCUBA diving. The number of times a respondent has visited does not increase their understanding of management approaches.

The zoning plan

Surin's zoning plan identifies four zones. The Strict Nature Reserve and Recovery Zones include prohibition of all activities except research; while Outdoor Recreation and General Use Zones allow non-destructive recreation activities. Zoning was based on reef condition and biodiversity, with the area of highest biodiversity selected as one of the Strict Nature Reserve areas. With the El Niño phenomenon in 1998, reefs in the General Use and Outdoor Recreation Zones were extensively damaged. In response to demand for better diving sites, management permitted recreation activities at prohibited zones in 1999 and again in 2003. That is, no area was prohibited from diving activity, and the integrity of the whole zoning plan was lost. Seven years of monitoring reef condition suggests the reefs remained in good condition but variously affected by this increased recreation activity.

Mooring system

To meet the needs of tourists and the changed zoning situation, and still achieve conservation objectives, management adopted a facility approach to management, using a pro-active mooring buoy

strategy. Because park regulation prohibits anchoring on the reef, all activities require the use of buoys (78 around Surin). Since each buoy is designed to carry only one boat, the limited number of buoys also limits visitor number. Areas with higher conservation values have fewer buoys than areas provided for recreation.

Initially, buoys were provided only for vessels used for conducting snorkelling activities. However, these buoys were unable to support large SCUBA vessels and resulted in damage to the buoys and reefs. In addition, since buoys were not provided specifically for SCUBA diving, crowding occurred and with it conflict between user groups. In 2002, designated activity areas were clarified and crowding reduced. Biologically, the percent cover of branching, foliose and tabulate corals increased.

In summary, while tourism activity is a threat to the reefs, it was possible, pre-tsunami, to manage this threat using well-established site management strategies. In contrast, the zoning plan was ineffective because of a lack of communication and was ultimately negated by management action opening previously regulated sites.

POST-TSUNAMI SITUATION

Reef condition

Survey data (January 2005) reveal that the tsunami affected the reefs of Surin differentially. The area previously defined as the richest (Torinla Island) and the area most used by visitors were destroyed. Massive coral forms tended to be less affected, but again this was variable. Much sand was moved and all coral forms now face the effect of being covered as well as secondary covering as the sand shifts by altered hydrographical flows. The shallow safe-snorkelling area immediately adjacent to park headquarters, for example, is now unsafe because of altered currents.

Infrastructure and tourist flow

The park headquarters and camping area were destroyed, including the visitor information centre; the most effective communication medium for conveying management strategies. Tourism activity ceased through a cessation in tourist arrivals. However, dive operations have quickly recovered and now approach pre-tsunami levels. The loss of tourist fees means that park management capacity has been significantly reduced. Staffs have been laid-off and funds are not available to purchase fuel for patrols or to service the trickle of non-diving tourists arriving for day visits. It is unlikely that funds will be available to re-establish the camping ground (and a fully functional headquarters) for at least a year.

A PROGNOSIS OF THE EFFECTS ON FUTURE MANAGEMENT

While there is Government good-will towards Surin, it is likely that effective management will be slow in being re-established. Without immediate cash investment, much depends on the recovery of tourism to supply funds for rebuilding infrastructure, which will necessarily lag behind demand. Park management will be placed in a ‘catch-up’ situation for some time. Diving has recovered already and demand exists for accessing all sites without the capacity of management to regulate numbers and behaviour.

The changed biological status of reef areas has negated the rationale for management zones and operational practice. The lack of understanding, prior to the tsunami, means that it will be difficult to convince stakeholders of the need to adjust zoning plans and operational management strategies. As tourism activity rapidly recovers, demand increasingly will concentrate on the least affected areas and potential impacts will increase, especially in the absence of a management presence. Exacerbating the problems is the unknown effects of sand movements and altered currents. Reef quality deterioration may continue for some time,

until a new stasis is achieved. Immediate, reactive zoning may not be the appropriate response.

LESSONS FROM THE TSUNAMI EXPERIENCE

Sporadic catastrophic events can rapidly alter the expression of the rationale for marine park zoning, requiring a change is zones, with potential confusion for and conflict with users.

For island-centred marine national parks, if total protection zones are used as a strategy for biodiversity protection, then topography and hydrography must be used as additional criteria for site selection to account for sporadic catastrophic events.

The support of operators is vital if marine mark management is to have the flexibility to respond to the changed conditions created by sporadic catastrophic events.

Government and tourist industry support for the intent of marine park management approaches is essential for managers to quickly alter strategies in response to the changed conditions from a sporadic catastrophic event to achieve long-term protection objectives.

Marine park management must be sensitive and responsive to the recovery needs of tourist operators in the immediate post catastrophe period and support recovery with flexible management policies but towards a mutually agreed long-term strategy.

The necessary level of mutual understanding and cooperation between stakeholders, and at least a spirit of co-management, must be in place before the catastrophic event.

Tourist and community understanding of management intent and strategies applied is likely to be a significant factor in influencing tourist operators, tourist industry and government to support marine park management action.

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